The individual personality disorders briefly outlined above have social importance. Limits of space prevent me from illustrating them by examples, and from discussing their treatment before or after their arrest for a crime; but they appear before medical men much more often than the defective or insane, and many pass by unrecognised. Their early recognition and treatment may prevent the commission of major as well as of minor crimes, for although the constitutional crimogenic factor may remain uninfluenced by therapy the environmental factor may be amended thereby and conduct become adjusted to social requirements.

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SIMULTANEOUS OCCURRENCE OF HERPES ZOSTER AND VARICELLA

With a Report of Three Cases

By JOHN ALMEYDA, M.R.C.S., D.P.H.(Lond.)
(*Senior Clinical Assistant, Royal Chest Hospital, N.*)

In the past five decades many articles have been published revealing the association between varicella and herpes zoster. The evidence in favour and against the close relationship of these two conditions has been carefully tabulated by WARD (1941). Up to the present, however, the identity of the causal viruses has not been proven conclusively.

BOKAY (1892) was the first to note their clinical association. Since his observation many cases appeared in the medical press in which varicella had developed in susceptible individuals when exposed to herpes zoster and vice versa.

Concerning another aspect of their relationship, namely, the simultaneous appearance of herpes zoster and varicella in the same patient, much fewer cases have been so far reported. FERRIMAN (1939) reviewed about 100 cases, and concluded that this combination of diseases was common in the elderly men, and that varicella followed herpes zoster within five days. He supported the view that the eruptions were caused by identical or clearly related organisms. CAMPBELL (1941) reviewed the literature to date, and described three cases, one of which was that of a male infant. He stated that in all his cases an attack of unilateral herpes zoster was followed by the development of a varicelliform rash at intervals of five to seven days. The eruptions were generalised, small and somewhat sparsely distributed on the body, but evolved typically through the stages of vesiculation and crusting. He believed that this explained the apparent co-existence of the two diseases, and that the virus of varicella was the infecting agent.

In this article three cases are submitted in which the simultaneous appearance of herpes zoster and varicella eruptions are recorded. Case No. 3 is that of a female, in whose home her three children, aged 13, 20 and 11 years, developed severe varicella one after the other within the recognised incubation period. Furthermore, the daily woman who worked in the home twice a week acted as "carrier" and conveyed the virus to her husband, who developed the dual diseases, with a fatal termination (case No. 1).

Case No. 1.—G. A. T., German male, aged 59 years, metal-box maker, was seen at his home on June 18, 1942. He stated that three days prior to his herpetic attack he developed a cold with a peculiar tight and painful feeling in his right chest and upper abdomen. The typical attack of herpes zoster involved the cutaneous distribution of the 7th, 8th and 9th dorsal segments. Some of the eruptions were of a haemorrhagic nature. Treatment consisted of mist. aspirin. The shingles were painted with collodion, and tab. veganin was ordered for the neuritic pain. Three days later he complained of malaise, and a further examination revealed a generalised, scattered, papular, vesicular and pustular eruptions of a varicelliform character in different stages of evolution. These were noted mostly on the body, face, scalp, tongue and fauces, with very few eruptions on the limbs. The "spots" did not follow any nerve distribution. On the same day as the varicella attack he developed hiccough, which

persisted throughout the illness. On the morning of June 26, 1942 he got a sudden pain in his right epigastrium, and soon after had a severe hematemesis (1 pint). He became shocked and pulseless, and was conveyed by ambulance to the North Middlesex Hospital, where he was given a blood transfusion of 2 pints. He showed much improvement, but two days later (June 28, 1942) he collapsed and died suddenly during a second blood transfusion.

He did not have varicella in childhood, and at no period had he ever "caught" shingles. He did, however, suffer from dyspepsia for many years, and was in fact treated in the same hospital in November 1939 for a duodenal ulcer and atheroma of the aorta.

The autopsy findings revealed the following essential features: Adhesions over the lower lobe of the right lung. The lower lobes of both lungs were oedematous, and in the apex of the left upper lobe there were fairly numerous scattered lesions which suggested miliary tuberculosis. There was atheroma and calcification of the aortic cusps. The stomach showed no evidence of ulceration. The duodenum had a relatively small chronic ulcer with an eroded vessel in one wall. The small intestine, coecum and descending colon contained a considerable amount of altered blood.

Case No. 2.—H. T. H., male, aged 60 years, bookstall manager. On July 7, 1942 I was asked to see this patient at his home. He presented a severe attack of herpes zoster, which involved the left upper lumbar segments, with the eruption extending around the skin of the left groin and the left iliac and gluteal regions. The typical attack was preceded for a couple of days by malaise, a raised temperature and neuritic pain in the affected area. Four days later I was again asked to see him because he did not feel well and had noticed some fresh "spots" on his body and face. He was pyrexial and had by now developed "true" varicella. The eruptions were generalised and scattered rather sparsely on the face, scalp, body, tongue, palate, and upper limbs. The lesions were seen in all stages of vesiculation and crusting. The B.S.R. at the appearance of the herpes zoster was 9 mm. per hour, and at the appearance of the chicken-pox it was 25 mm. per hour, while a week later it was 15 mm. per hour. The varicelliform rash had cleared in a week, but the herpes rash had taken a further three weeks to clear.

The affected area remained tender and painful. Concerning his previous history, he was not aware of having ever contracted herpes zoster or varicella. He did, however, suffer from bronchial asthma, which had followed double pneumonia in 1918.

Case No. 3.—E. L. F., female, aged 42 years, housewife, was seen at her home on April 18, 1942, for a severe attack of herpes zoster involving the sensory distribution of the cervical 4th, 5th, 8th and thoracic 1st segments. The condition was preceded for three days by acute neuritic pains in the back of the head and outer portion of the right arm. Several of the vesicles were haemorrhagic. Four days later she complained of severe pain in the nape of her neck, malaise and a rise of temperature. The eruption had spread and become generalised and scattered all over, giving the appearance of "true" varicella. The lesions were noted in all their stages, namely, vesicles, pustules, and crusts. Though the varicella eruption had cleared in about a week, the herpetic ones had not completely disappeared four weeks later. The weakness and sensory disturbance of the affected arm did not return to normality for quite eight weeks.

She declared that she had contracted chicken-pox when ten months old and herpes zoster (6th, 7th, 8th dorsal) at the age of 9 years. Her daughters, aged 13, 20, and 11 years, developed severe varicella in sequence, after incubation periods of 16 days. The daily woman apparently conveyed the virus to her home during this period and infected her husband (case No. 1).

Commentary

There are many features of interest in the cases submitted that show the close relationship of herpes zoster to varicella and the common identity of the causal viruses.

All three cases revealed the simultaneous appearance of the two conditions. The varicelliform eruptions followed the unilateral herpetic attacks within the five-day interval. The chicken-pox lesions, though generalised, were sparsely distributed mostly on the face, body, scalp, fauces and tongue, with occasional lesions in the limbs. They were detected in all stages of their evolution, namely, vesicles, pustules, and crusts. Cases No. 1 and 2 were elderly men who had not contracted either disease before, whereas Case No. 3 was a female adult who had developed both conditions, at an earlier age, before this attack. The presence of hiccough in case No. 1 and its persistence to the fatal termination may have been a coincidence. On the

other hand, it may have been due to the herpes zoster virus. Unfortunately, the brain and spinal cord were not examined at autopsy, and consequently its interpretation must remain a conjecture. An indication of the virus's presence in the blood-stream is afforded by a study of the B.S.R. in case No. 2. This showed a normal reading during the earlier part of the herpetic attack, and a rise to 25 mm. per hour at the onset of the varicelliform eruption. In case No. 3 the similar incubation periods and the three different clinical relationships, namely, herpes zoster to varicella, varicella to herpes zoster, and the simultaneous appearance of the two conditions, are strongly suggestive of the common identity of the viruses.

It would appear, from a study of these cases and the current literature, that the virus of herpes zoster and varicella is one and the same, and that this virus possibly assumes a dual role. A neurogenic rôle when it is confined to the posterior root ganglia, its fibres, its peripheral nerves, the perivascular spaces, and the cerebro-spinal fluid. A hematogenous rôle when it finds its way into the general blood-stream. This view will explain the three clinical manifestations of this virus infection, namely, herpes zoster, varicella, and the joint diseases.

The frequency of varicella outbreaks originating from herpes zoster can be explained by the fact that the neurotrophic variant can more easily, given the right host, alter its nidus and thus become a hematotrophic one. The early unilateral herpetic lesions, and the constant interval before the varicella attack, is brought about by the neurotrophic virus taking a time to force a break-through from the perivascular spaces into the blood-stream, to assume the role of a hematotrophic virus. The frequency of varicella in children and the non-immune, and the relative frequency of herpes zoster in the elderly and those who had contracted varicella in early childhood, can be explained by the selective activity of the biphasic virus.

Finally, the modification of the varicella eruption, when present with herpes zoster, may be due to the presence of some anti-bodies, already produced during the latent interval by the herpetic attack.

Summary

Three cases illustrating the presence of the concurrent diseases herpes zoster and varicella are described. Case No. 3 caused an outbreak in the home, following the recognised incubation period, and also the co-existing diseases of herpes and varicella in case No. 1. A case for the common identity of the causal viruses of herpes zoster and varicella is made, and its dual role that is neurotrophic and hematotrophic is explained.

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Practicalities

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THE CLINICAL STUDY OF THE CARDIO-VASCULAR SYSTEM

By F. CROXON DELLER, M.D., D.A.

PART II

In the previous article we discussed the clinical differential diagnosis of those diseases grouped under the general heading of cardiac pain, and showed how such diagnosis could often be made by carefully questioning the patient. The physical signs associated with these diseases often, in themselves, mean little, though they sometimes point to certain complications, such as auricular fibrillation, which we will not discuss in relation to these histories, as they in no way differ from the conditions which we are about to describe. Some auscultatory signs, such as the tone of the heart sounds or their reduplication, may help the diagnosis. For example, in a